

Brownsville Bridge
Brownsville
Union County
Indiana

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Historic American Engineering Record
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HISTORIC AMERICAN ENGINEERING RECORD

Brownsville Covered Bridge (Wagon Bridge)

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Location:	Eagle Creek Park, Indianapolis.
Date of Construction:	1837-1840
Present Owner:	
Significance:	The only remaining example of the Long truss system covered bridge in Indiana. Invented by Colonel Stephen H. Long, the truss system was based upon mathematical calculations. While the calculations were not extensive, they did lay a basis for scientific principals being applied in what had hitherto been a pragmatic art.
Historians:	Robert Rosenberg Donald Sackheim

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The Brownsville Covered Wagon Bridge, spanning Eagle Creek in the Eagle Creek Park in Indianapolis, was moved to its present location in 1974. Prior to its removal to Indianapolis the bridge spanned the east fork of the Whitewater River at the western edge of Brownsville, Indiana. Erected by Adam Mason in 1837-40, the bridge employs the truss system patented by Colonel Stephen H. Long, one of the earliest truss systems based upon mathematical calculations.

The people of Brownsville agitated for a bridge in the 1830's following the completion of the new National Road which passed two miles south of the town and diverted traffic and trade from the area. At this time, Colonel Stephen H. Long, pressed by his duties with the Army Topography Engineers, was successfully employing "sub-agents" to promote his bridge design for use on the National Road. The "sub-agents" were scattered through Ohio and Indiana, and were responsible for overseeing bridge construction and ensuring payment of royalty fees.

Born in Hopinton, New Hampshire, in 1784, Stephen H. Long was more a promoter than an actual bridge-builder. During his thirty-year career he authored several pamphlets and a booklet giving advice to bridge-builders, and constructed bridge models to be carried by his sub-agents in their attempts to sell his patented truss system. Long's truss system was based upon mathematical calculation. The traditional method of truss building, based upon a rule-of-thumb, was to construct a scale model of the proposed bridge, and then apply increments of pressure until a member failed. The results of tests in the scale model were then multiplied to full scale and the stresses deduced. While Long's calculations were not extensive, they did lay a basis for the application of scientific principles to what hitherto had been a pragmatic art.

Long's sub-agents in Marion County were successful, and in 1837, the Indiana State Legislature apportioned \$1,200 for the construction of the bridge. According to the provisions of the act, the bridge was to have "good and sufficient handrails" on each side and was to be completed within three years. The act further stipulated that no other bridge was to be allowed within a mile of the Brownsville Bridge. Shortly after passage of the act, Adam Mason and his father undertook the project. Unfortunately for Mason, the funds allocated by the state legislature were insufficient to finish the project and he was forced to draw \$400 from his own funds to complete the bridge.

The Wagon Bridge, or the "Bill-Poster's Paradise" as it was called locally, proved an immediate boon to the people of Brownsville, as it brought back the traffic that the National Road had diverted. During the decade of the 1830's, the Long patent truss, along with its principal competitor, the Town lattice truss, was popular among American bridge builders, but after 1840 the popularity of both designs was eclipsed by the development of the Howe truss.

Design and Materials

The Long Truss resembled a series of boxed X's with the bracing and counter-bracing crossing between the vertical posts to form an X. Aside from the metal roof and connectors, the Brownsville covered wagon bridge is built entirely of wood. It is composed of 16 bays or panels, and spans 154 feet. It is 166 feet long, 24 feet high (from roadbed to ridge) and 21 feet 6 inches wide, with an 8 inch overhang at each end to protect the entries. The bridge rests 20 feet above water level. Its western approach is via a viaduct or causeway which appears to be of more recent construction though the exact date is not known.

The structure is basically a series of kingposts with counter-braces. The panel posts of the trusses are 8 x 12", the braces are 8 x 9", and the counterbraces are 8 x 8 ". The upper cords, each made up of four members, two 5 1/2" and two 6 1/2". The two trusses composing the sides are connected at the top by 5 x 6" cross braces and by both 1 inch metal horizontal tie bars and 5 x 6" cross braces at the bottom.

Brownsville Covered Bridge

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